

## BACKGROUND OF THE INVENTION

- A.M.  
5/02/05.
- This application is a Divisional of Ser. No. 08/923,181 filed 9/24/1997  
non Pat. No. 5,891,787
1. Field of the Invention

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This invention relates to integrated circuit fabrication and more particularly to an improved process of implanting excess atoms within active areas of a semiconductor substrate laterally adjacent to a trench isolation structure to enhance properties of the integrated circuit.

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2. Description of the Relevant Art

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The fabrication of an integrated circuit involves placing numerous devices in a single semiconductor substrate. Select devices are interconnected by conductors which extend over a dielectric that separates or "isolates" those devices. Implementing an electrical path across a monolithic integrated circuit thus involves selectively connecting devices which are isolated from each other. When fabricating integrated circuits it is therefore necessary to isolate devices built into the substrate from one another. From this perspective, isolation technology is one of the critical aspects of fabricating a functional integrated circuit.

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A popular isolation technology used for a MOS integrated circuit involves the process of locally oxidizing silicon. Local oxidation of silicon, or LOCOS processing involves oxidizing field regions of a silicon-based substrate between device areas. The oxide grown in the field or isolation regions is termed "field oxide". The field oxide is grown during the initial stages of integrated circuit fabrication, before source and drain implants are placed in device areas or active areas. By growing a thick field oxide in field regions pre-implanted with a channel-stop dopant, LOCOS processing serves to prevent the establishment of parasitic channels in the field regions.

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